

Application No. 09/723,722
Amendment dated March 18, 2005
Reply to Office Action of December 23, 2004

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A protein purified to apparent homogeneity comprising ~~a segment of a β -secretase enzyme protein comprising residues 63-452 of SEQ ID NO:2, the segment comprising valine at a position corresponding to position 130 of SEQ ID NO:2, wherein the segment protein lacks a signal sequence (amino acid residues 1-21 of SEQ ID NO:2) and the putative pro-region (amino acid residues 22-45~~ 1-45 of SEQ ID NO:2), and the protein exhibits β -secretase activity.

2-14. (Canceled)

15. (Currently Amended) The protein of claim 1, wherein said protein consists of ~~a polypeptide having the amino acid sequence~~ SEQ ID NO: 43.

16-17. (Canceled)

18. (Currently Amended) The protein of claim 1, wherein said protein has an N-terminal residue corresponding to a residue selected from the group consisting of residues 46, 58 and 63 ~~of SEQ ID NO: 2 with respect to SEQ ID NO: 2~~ and a C-terminus selected from a residue between positions 452 and 501 ~~of SEQ ID NO:2 with respect to SEQ ID NO: 2.~~

19-21. (Canceled)

22. (Previously Presented) The protein of claim 1, wherein said protein is produced by a heterologous cell.

23. (Previously Presented) A crystalline protein composition formed from the protein of claim 1.

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24. (Previously Presented) The crystalline protein composition of claim 23, wherein said purified protein is characterized by a binding affinity for the β -secretase inhibitor substrate P10-P4'sta D \rightarrow V which is at least 1/100 of an affinity exhibited by a protein having the amino acid sequence SEQ ID NO: 43, when said proteins are tested for binding to said substrate under the same conditions.

25. (Previously Presented) The crystalline protein composition of claim 23, wherein said composition is formed from a protein having a sequence selected from the group consisting of SEQ ID NO: 43, and SEQ ID NO: 71.

26-28. (Canceled)

29. (Original) The crystalline protein composition of claim 23, wherein said protein is glycosylated.

30. (Original) The crystalline protein composition of claim 23, wherein said protein is deglycosylated.

31. (Original) The crystalline protein composition of claim 23, wherein said composition further includes a β -secretase substrate or inhibitor molecule.

32. (Cancel)

33. (Original) The crystalline protein composition of claim 31, wherein said β -secretase inhibitor ~~has consists of~~ the sequence SEQ ID NO: 72 [P10-P4'sta D \rightarrow V], ~~including conservative substitutions thereof.~~

34. (Original) The crystalline protein composition of claim 31, wherein said β -secretase inhibitor ~~has consists of~~ the sequence SEQ ID NO: 81 [EVMXVAEF], wherein X is hydroxyethylene or statine.

35. (Cancel)

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36. (Original) The crystalline protein composition of claim 31, wherein said β -secretase inhibitor is characterized by a K_i of no more than about 50 μ M.

37-131. (Canceled)

132. (Previously Presented) The protein of claim 1, wherein the protein has been purified sufficiently to run as a single band on a SDS PAGE gel under reducing conditions.

133. (Previously Presented) The protein of claim 1, wherein the protein has been purified sufficiently to provide a suitable substrate for N-terminal amino acid determination.

134. (New) The protein of claim 1, wherein the protein comprises SEQ ID NO: 58.